Probability function of time

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ABSTRACT

For a long time there has been the perspective that time is continuous, however thanks to the uncertainty principle we don’t know if it can remain continuous or not from a certain scale, we propose to observe what would happen with time in these ranges if It will behave like other elements of physics that stop being continuous at a certain level and even respond to a probability function and how this would affect different observers.

The separation between time t_1 and time t_2 in classical physics $t_2 - t_1$ tends to zero however in modern physics $t_2 - t_1 \geq \frac{\hbar}{E_2 - E_1}$, , if we take a particle whose energy difference is $E'_2 - E'_1 \leq E_2 - E_1$ and therefore $t_2 - t_1 \leq t'_2 - t'_1$, if $t'_1 = t_1$ then $t_2 \leq t'_2$ two consecutive instants for both particles but that reach different amounts of time , this is adapted to a probability function of time where we can explain the possible instants in which both particles could coincide or not, this gives us a result in which the particles are observable and can act between them only at certain moments and a vision of discontinuity and temporal mismatch between them due to the nature of time itself in each of them $T=\boldsymbol{\phi}(t)$ y $T'=\boldsymbol{\phi}(t')$.

References

Werner Heisenberg, Encounters with Einstein and Other Essays on People, Places and Particles, Published October 21st 1989 by Princeton University Press,p.53.

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